c) adsorbing the nucleic acids in the second buffer solution onto the surface of a mineral support material, optionally in the presence of lower alcohols, poly(ethylene glycol), or a mixture thereof, and

d) desorbing the nucleic acids from the mineral support material using an eluant, wherein the eluant is water or a third buffer solution, which has an ionic strength lower than the second buffer solution.

41. The process according to claim 40, wherein the process steps b) and c) are carried out in immediate succession.

42. The process according to claim 40, wherein, prior to the digesting step, the cells are subjected to centrifugation or filtration in order to remove undissolved components.

43. The process according to claim 40 further comprising, between the steps a) and b), one or more washing steps using a fourth buffer solution, which has a low ionic strength, optionally increasing ionic strength per washing step.

44. The process according to claim 40 further comprising, between the steps c) and d), one or more washing steps using a fifth buffer solution, which has an ionic strength higher than the first buffer solution.

45. The process according to claim 40 further comprising, between the steps c) and d), at least one washing step using an aqueous alcoholic solution.

46. The process according to claim 40 further comprising, between the steps c) and d), a washing step using a

solution having an ionic strength corresponding to a 1.5 molar sodium perchlorate solution and a pH of 5.

47. The process according to claim 40, wherein the anion exchanger has a high surface charge.

48. The process according to claim 40, wherein the isolated and purified nucleic acid comprises from 10 nucleotides to 200,000 nucleotides.

49. The process according to claim 40, wherein the mineral support material is silica gel, glass, zeolite, aluminum oxide, titanium dioxide, zirconium dioxide, kaolin, diatomacae, or a combination thereof.

50. The process according to claim 40, wherein the anion exchanger includes a porous or non-porous matrix having a particle size of from 1 to 250 μm.

51. The process according to claim 40, wherein the anion exchanger includes a porous or non-porous matrix having a particle size of from 10 to 30 μm.

52. The process according to claim 40, wherein the mineral support is silica gel, in suspension, having a particle size of from 1 to 250 μm.

53. The process according to claim 40, wherein the mineral support is silica gel, in suspension, having a particle size of from 1 to 5 μm.

54. The process according to claim 40, wherein the anion exchanger has a particle size of from 1 to 250 μm and a pore diameter of from 1 to 2,500 nm.

55. The process according to claim 40, wherein the anion exchanger has a particle size of from 10 to 100 μm and a pore diameter of from 1 to 2,500 nm.

56. The process according to claim 40, wherein the anion exchanger has a particle size of from 10 to 100 μm and a pore diameter of from 100 to 400 nm.

57. The process according to claim 40, wherein the anion exchanger has a particle size of from 1 to 250 μm and a pore diameter of from 100 to 400 nm.

58. The process of claim 45, wherein the aqueous alcoholic solution includes from 1 to 7 M sodium perchlorate, from 1 to 7 M guanidine-HCl, from 1 to 5 M sodium chloride, from 1 to 6 M sodium iodide, and 1 M sodium chloride/20% ethanol, propanol, isopropanol, butanol, poly(ethylene glycol), or a mixture thereof.

59. The process of claim 40, wherein the eluant is a buffer solution that comprises water and Tris at a pH value of from 5 to 9.

60. A process for the isolation and purification of nucleic acids from digested cells comprising the steps of:

a) removing cell debris from the digested cells by passing the digested cells through a filter having decreasing pore size in flow direction to effect an effluent,

b) subjecting the effluent to anion exchange against an anion exchanger in a buffer solution of low ionic strength.

61. A process for the isolation and purification of nucleic acids from digested cells comprising the steps of: